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S/N: 10/064,172

REMARKS

Claims 1-17 and 21-27 are pending in the present application. In the Final Office Action mailed June 16, 2004, claims 1-5 were rejected under 35 U.S.C. §102(b) as being anticipated by Edholm et al. (USP 3,717,768). Claims 25-27 were rejected under 35 U.S.C. §102(b) as being anticipated by Edholm et al (USP 3,755,672) (hereinafter: Edholm '672). Claims 12-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Edholm et al (USP 3,717,768) (hereinafter, Edholm '768). Applicant appreciates the Examiner's indication of the allowability of claims 6-11 and 21-24.

In rejecting claim 1 under §102(b), the Examiner stated that all elements of the "pre-subject filter for a radiographic imaging system" of claim 1 are disclosed in Edholm '768. However, Applicant respectfully disagrees with the conclusions reached by the Examiner. Edholm '768 teaches a filter body that is round and has no ends, no points on the perimeter of the filter body having larger or smaller attenuation profiles than any other such points, and the attenuation characteristics of the filter body are varying – not variable.

First, the Examiner indicated that the "lower" and "upper" portions of the unitary absorption body 7 of Edholm '768 constitute "a first end having a first attenuation profile" and "a second end having a second attenuation profile" as called for in claim 1. The Examiner's conclusion, however, is without merit. One of ordinary skill in the art would recognize that in order to define an attenuation profile of a portion of a body, the portion of the body must have a dimension parallel to the direction of an x-ray beam. "Upper" and "lower" portions of the absorption body would have dimensions perpendicular to the x-ray beam path, as shown in Fig. 4. The phrase "lower portion of the absorption body" describes the central region of the absorption body which is not as thick as the outer region of the absorption body, as shown in Figs. 5a and 5b. However, this interpretation would also be inconsequential to claim 1, as claim 1 calls for ends of a filter to have different attenuation profiles – not central and outer regions.

References to dimensions and portions aside, it is clear that the unitary absorption body 7 of Edholm '768 does not teach that called for in claim 1 since its attenuation characteristics, which vary through a cross-section, are not variable. The unitary absorption body is described as being of "a single dish-shaped" shape and is preferably constructed of a "rare earth metal[]". Col. 6, ln. 19, col. 9, lns. 5-6. It can therefore be recognized that the unitary absorption body is a rigid, defined structure and is not intended to change shape. The absorption body is used to provide "absorption of different portions of the radiation beam...generally inversely proportional to the

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absorption of the corresponding portions of the radiation beam in the object." Col. 4, lns. 15-19. Edholm '768 then explains that "in order to achieve the intended result it must be possible to adjust the position of the absorption bodies." Col. 4, lns. 47-49. Stated otherwise, the absorption bodies must be moved and repositioned in order for a user to achieve various x-ray attenuation patterns corresponding to various subjects. The absorption body itself may have attenuation characteristics that differ at various points in the absorption body, but the attenuation characteristic at any particular point is static. In contrast, claim 1 calls for the body of the filter to have "variable" attenuation characteristics in at least two orthogonal cross-sections."

As such, since Edholm '768 does not teach a filter body with variable attenuation characteristics, and since the Examiner has not shown that each and every element of claim 1 is disclosed, the rejection of claim 1 cannot be sustained. Therefore, claim 1 is believed patentably distinct from the art of record and is in condition for allowance. Furthermore, claims 2-5 are also in condition for allowance at least pursuant to the chain of dependency.

In rejecting claim 12 under §103(a), the Examiner indicated that Edholm '768 teaches all the elements of claim 12 except for the step of "reconstructing an image of the subject from the imaging data." The Examiner again cited the same unitary absorption body 7 of Edholm '768 as teaching a "filter having variable attenuation," as called for in claim 12. But as previously discussed, Edholm '768 does not teach variable attenuation characteristics in a filter.

In addition, Edholm '768 does not teach the step of "translating the filter parallel to the subject's long axis to reduce radiation exposure to sensitive anatomical regions of the subject." Throughout Edholm '768 there is no mention of translating a filter in relation to a subject. The citation provided by the Examiner states that the absorption bodies are "displaceable in a plane substantially perpendicular to the direction of radiation or along a spherical surface having the radiation source as its center." While some movement of the absorption body relative to the radiation path or radiation source is contemplated, translation of the absorption body parallel to the long axis of a subject is not taught.

Edholm '768 neither teaches nor suggests a "filter having variable attenuation" or the translation of a filter "parallel to the subject's long axis," and the rejection of claim 12 based on Edholm '768 is therefore unsustainable. Thus, Applicant believes claim 12 is in condition for allowance, and that claims 13-17 are also in condition for allowance at least pursuant to the chain of dependency.

In rejecting claim 25 under §102(b), the Examiner indicated that Edholm '672 discloses all the elements of the cam filter assembly of claim 25. However, Applicant disagrees since, at a

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minimum, Edholm '672 does not teach "cam filters" but instead merely non-rotating, wedge-shaped absorption bodies.

The Examiner contended that the two solid bodies of radiation absorbing material 11a and 11b of Edholm '672 constitute "a pair of non-overlapping cam filters." It appears the Examiner has misunderstood the meaning of the word "cam." One skilled in the art would recognize that "cam" implies rotation.

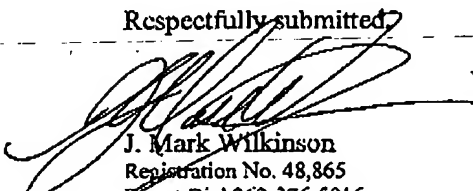
In contrast and according to Edholm '672, the absorption bodies move "relative each other and the radiation beam from the radiation source 1 in a plane substantially perpendicular to the direction of radiation," and that "[t]he absorption bodies are moved by servomotors 12a and 12b, respectively." Col. 6, lns. 56-58, 62-64. That is, Edholm '672 says nothing about any rotation of the absorption bodies. Furthermore, the shape of the absorption bodies, the described motion of the bodies, and the fact that each body is moved by only one servomotor serve as additional evidence that the filters of Edholm '672 are intrinsically designed not to rotate.

As such, Edholm '672 does not teach cam filters, and thus does not teach that called for in claim 25. Accordingly, Applicant believes claim 25 is patentably distinct and in condition for allowance, and that claims 26 and 27 are also in condition for allowance at least pursuant to the chain of dependency.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-17 and 21-27.

Applicant appreciates the Examiner's consideration of these Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,



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